

What is claimed is:

1. A vehicle engine ignition control system, comprising:

a starter solenoid and motor;

engine control electronics;

an engine coupled to the motor for starting and to the engine control electronics for control of its operation;

a multiple position ignition switch having first and second outputs which assume energized states in response to positioning of a key switch, the second output being energized in response to positioning of the key switch in an ignition position and in a start position;

a remote switch providing a connection to ground when closed;

a controller communicating with the engine control electronics and coupled to the remote switch to be responsive to closure of the remote switch and indication that the engine is not currently operating for providing a remote start energization signal;

a remote start relay coupled to respond to the remote start energization signal occurring concurrently with closure of the remote start switch for providing an activation signal on an output; and

a starter relay coupled to respond to energization of the first output of the multiple position ignition switch or to the activation signal from the remote start relay for providing activation energization to the starter solenoid and motor.
2. A vehicle engine ignition control system as set forth in claim 1, further comprising:

a vehicle electrical power source;

a chassis ignition relay for coupling power from the vehicle electrical power source to the engine control electronics for maintaining operation of the engine;

a remote switch state detection relay coupled to the remote switch and to the second output of the multiposition ignition switch and responsive to the concurrent occurrence of an energization signal on the second output of the multiposition ignition switch and closure of the remote switch to generate a remote stop energization signal;

the controller being further responsive to closure of the remote switch and indication that the engine is operating for providing a ground connection through an input; and

a remote stop relay for coupling energization from the multiple position ignition switch to the chassis ignition relay connected to the remote switch state detection relay to receive the remote stop energization signal and further connected to the input of the controller, the remote stop relay being responsive to the remote stop energization signal and grounding through the controller input for interrupting energization of the chassis ignition relay and thereby operation of the engine.

3. A vehicle engine ignition control system as set forth in claim 2, further comprising:

a diode coupled to conduct the activation signal from the output of remote start relay back to a sense input of the remote start relay in backup to possible loss of the energization signal from the controller.

4. A vehicle engine ignition control system as set forth in claim 3, further comprising:

a safety switch connected between the remote start relay and a sense input of the starter relay.

5. A vehicle engine ignition control system as set forth in claim 3, further comprising:

a backup drive motor and solenoid connected to the vehicle electrical power source;

a backup drive motor operation inhibit relay;

a backup drive motor relay coupled to receive energization from a second output of the remote start relay and coupled to the remote switch to be responsive to concurrent closure of the remote switch and application of the energization signal from the remote start relay for coupling energization signal from the remote start relay to the backup drive motor operation inhibit relay as an input; and

the controller further providing a connection to ground on an inhibit input in response to the key switch being in the ignition position and engine cranking having been attempted and failed.

6. A vehicle engine ignition control system as claimed in claim 5, further comprising:

the controller being programmed to provide a delay in connecting the inhibit input to ground following stop in engine operation.

7. A utility truck with remote engine shut down and start up, comprising:

an electrical power source;

an engine;

a starter motor mechanically coupled to the engine and starter solenoid for connecting the starter motor to the electrical power source;

a starter relay for supplying electrical power from the electrical power source to the starter solenoid;

a multiple position ignition switch having an output energized by placing a key switch in at least one position other than an off position;

a remote switch having a default open position and a closed position;

an electrical system controller connected to detect the movement of the remote switch to the closed position, the electrical system controller being responsive to detection of

movement of the remote switch concurrent with the engine running for supplying a first ground connection on a remote stop relay enable port and for detection of movement of the remote switch concurrent with the engine not running for supplying a remote start relay energization signal on a start signal port; and

a remote start relay connected by an input to respond to the remote start relay energization signal on the start signal port of the electrical system controller for connecting the output of the multiple position ignition switch by an output to an input of the starter relay, the starter relay being responsive energization of the output of the multiple position ignition switch for providing an activation signal to the starter solenoid.

8. A utility truck with remote engine shut down and start up as set forth in claim 7, further comprising:

a diode for coupling the energization supplied to the starter relay by the remote start relay back to a sense input of the remote start relay for latching the remote start relay; and

the starter relay being connected to the remote switch to remain active after latched for as long as the remote switch is closed.

9. A utility truck with remote engine shut down and start up as set forth in claim 7, further comprising:

an engine controller having an ignition input and responsive to an enable signal on the ignition input for allowing the engine to run;

an ignition relay for supplying an activation signal on the ignition input;

a remote stop relay having an energization input and an enable input for supplying the activation signal to the ignition relay; and

the electrical system controller being connected to the enable input of the remote stop relay and further responsive to closure of the remote switch when the engine is running for supplying an enabling signal to the enable input of the remote stop relay.

10. A utility truck with remote engine shut down and start up as set forth in claim 9, further comprising:

a remote switch state detection relay coupled to the remote switch and to the output of the multiposition ignition switch and responsive to the concurrent occurrence of an energization signal on the output of the multiposition ignition switch and closure of the remote switch to generate a remote stop energization signal for application to a energization input of the remote stop relay.

11. A utility truck with remote engine shut down and start up as set forth in claim 10, further comprising:

a backup motor and solenoid for energization from the electrical power source;

the electrical system controller being responsive to conditions indicating a failure of the engine to resume operation after cranking initiated by the remote switch for providing an inhibit disable signal;

a backup motor inhibit relay connected to the electrical system controller to receive the inhibit disable signal;

a backup motor energization relay coupled to the output from multiple position ignition switch and to the remote switch to respond to concurrent closure of the remote switch and an energization signal on the output to apply a backup motor activation signal to the backup motor inhibit relay; and

the backup motor inhibit relay being connected between the backup motor energization relay and the backup motor for coupling the backup motor activation signal to the backup motor in response to the inhibit disable signal.

12. A utility truck with remote engine shut down and start up as set forth in claim 11, further comprising:

the inhibit disable signal being the absence of a ground connection through port on the controller.

13. A utility truck with remote engine shut down and start up as set forth in claim 12, further comprising:

a hydraulic pump coupled to be powered by the engine and the back up motor; and

a hydraulic lift unit coupled to the hydraulic pump.

14. A utility truck with remote engine shut down and start up as set forth in claim 13, further comprising:

an aerial lift unit including a bucket for an occupant coupled to the hydraulic lift unit to be raised and lowered.

15. A utility truck with remote engine shut down and start up as set forth in claim 14, further comprising:

a pneumatic actuation system accessible from the bucket for the remote switch.